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# INSTRUCTION MANUAL

# MODEL RFH 1 OSCILLATOR

# UNIT HOUSING AND MODEL WE 2 WEATHERPROOF ENCLOSURE

SERIAL NO. 36437

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# I. GENERAL DESCRIPTION

## 1.1 Introduction

The Model RFH 1 Oscillator Unit Housing is a combination housing and cooling unit designed to be used with all Scientific-Atlanta series RFO oscillator units. The housing may be rack mounted or enclosed in the Model WE 2 Weatherproof Enclosure.

The Model WE 2 Weatherproof Enclosure is a welded aluminum, all-weather enclosure designed to protect the Model RFO oscillator unit and housing at the transmitting antenna site.

## 1.2 Specifications

RFH 1 Housing:

| | |
|---|---|
| Power Required | 115 v ac, ± 10%<br>60 cps, approximately 100 watts |
| Dimensions: | |
| Height | 9-1/2 inches |
| Width | 17 inches |
| Depth | 6-1/2 inches |

WE 2 Enclosure:

| | |
|---|---|
| Dimensions (with cover): | |
| Height | 12 inches |
| Width | 21 inches |
| Depth | 19 inches |

## II. DETAILED DESCRIPTION

### 2.1 Mechanical

The Model RFH 1 housing consists of two main assemblies: a housing assembly and a cooling assembly.

The housing assembly (6) is constructed of aluminum and contains nylon slides which support the oscillator unit. The housing extension (4) is a removable aluminum unit and is used when mounting the Model RFH 1 in the Model WE 2 enclosure. Eccentric retainers (cam locks) (3) on the housing extension unit lock the oscillator unit in place after it is inserted.

The cooling system is mounted on the rear of the housing assembly on the fan bracket (7). The cooling system operates by pulling air through the front panel, into the housing, and out through the rear duct which contains an air-flow operated microswitch.

### 2.2 Electrical

A schematic diagram of the Model RFH 1 housing is shown in Drawing No. 2. The blower motor requires 115 volts ac which is applied through an interference filter. The microswitch shown is the air-flow operated microswitch. External connections to the blower motor and microswitch are made through the Amphenol connector (1) located in the front grille assembly (5), or the same connector located on the side of the fan mounting bracket. The location of this connector is determined by the type of mounting to be used (see Installation).

The microswitch, when using the Scientific-Atlanta Model PS 21 Power Supply, is designed as an interlock which interrupts the high voltage supply to the oscillator unit in the event of a blower failure.

# III. INSTALLATION

## 3.1 Model RFH 1 Housing in Model WE 2 Enclosure

To mount the Model RFH 1 housing in the Model WE 2 enclosure, the housing extension (4) must be used. The housing extension is mounted in the manner shown in Figure 1 and must be done simultaneously with the mounting of the housing in the Model WE 2 enclosure. Mounting is accomplished using six Allen head screws. When mounting the Model RFH 1 in the Model WE 2 enclosure, the grille assembly (5) is left in place, and the Amphenol connector (1) used to supply fan power is located in the center of this grille. The two upper eccentric retainers (3) must be in place on the front of the housing extension to secure the oscillator unit in the housing.

## 3.2 Rack Mounting

To rack mount the Model RFH 1 housing, the housing extension must be removed. This is done automatically when removing the housing from the Model WE 2 enclosure if the housing has been previously mounted in this enclosure. The two upper eccentric retainers must then be removed from the housing extension unit and mounted in a similar location on the front of the main housing assembly. The grille assembly must be removed and the connector mounted on the grille must be transferred to a location on the left side of the fan mounting bracket. The mounting holes for this connector are pre-punched so no drilling or punching is required. After transferring this connector, it should be checked to be sure that it is rewired according to Drawing No. 2.

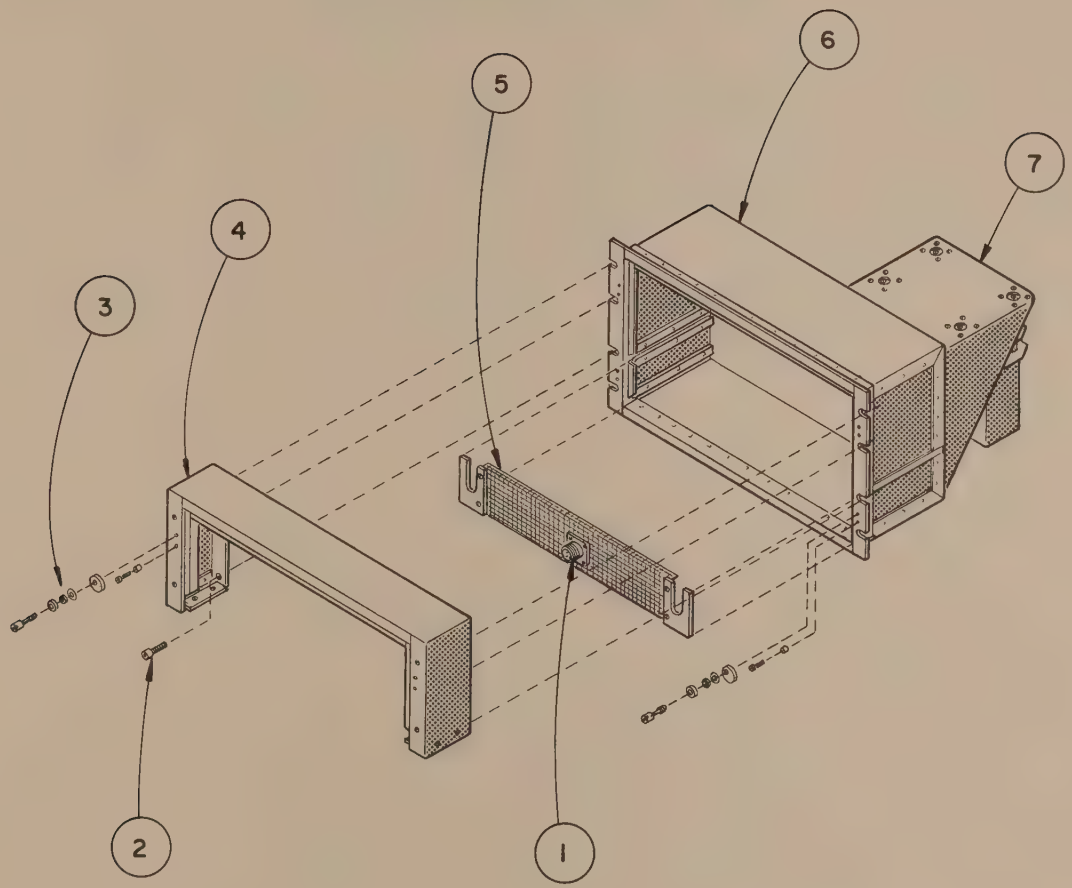



Figure 1. Exploded View of the Model RFH 1 Oscillator Unit Housing.

PARTS LIST

MODEL RFH 1
OSCILLATOR UNIT HOUSING
AND
MODEL WE 2
WEATHERPROOF ENCLOSURE

| Code | Manufacturer |
|---|---|
| ABE | Amphenol-Borg Electronics Corp. |
| DE | Dayton Electric Manufacturing Co. |
| M | Miller Company, J. W. |
| MS | Micro Switch |
| SA | Scientific-Atlanta, Inc. |

PARTS LIST

MODEL RFH 1

OSCILLATOR UNIT HOUSING

| Component Designation | Description | Mfr.* | Mfr. Part No. |
|---|---|---|---|
| 1 | Amphenol connector | ABE | AN-3102A-14S-2P |
| 2 | Screw, Allen head | | 10-32-3/4" |
| 3 | Cam lock | SA | RFH1-MA-5340 |
| 4 | Housing extension | SA | WE2-MB-5351 |
| 5 | Grille assembly | SA | WE2-MB-5357 |
| 6 | Housing assembly | SA | RFH1-MD-5334 |
| 7 | Fan bracket | SA | RFH1-MC-5342 |

The Following Parts Are Not Called Out By Number.

| | | |
|---|---|---|
| Motor, ac | DE | 2MO57 |
| Interference filter | M | 7812 |
| Switch actuator | SA | RFH1-MA-6403 |
| Microswitch | MS | 1SM1 |
| Gasket, housing assembly | SA | RFH1-MA-5339 |
| Nylon slide, housing assembly | SA | RFH1-MA-5338 |
| Gasket, duct | SA | RFH1-MA-5350 |
| Nylon slide, housing extension | SA | WE2-MB-6405 |
| Gasket, housing extension | SA | WE2-MA-5356 |

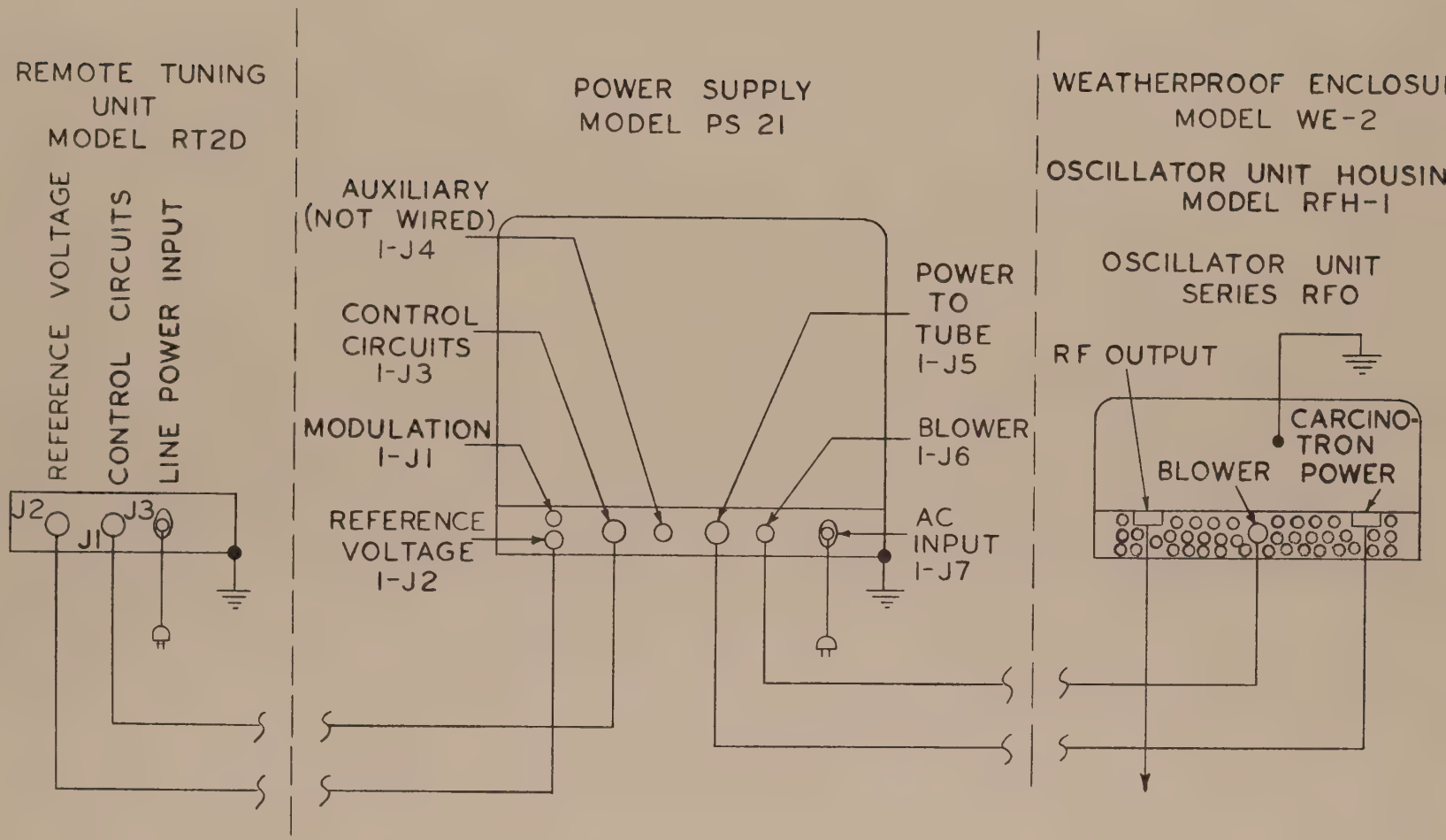
*See "MANUFACTURERS' CODE LETTERS"

PARTS LIST

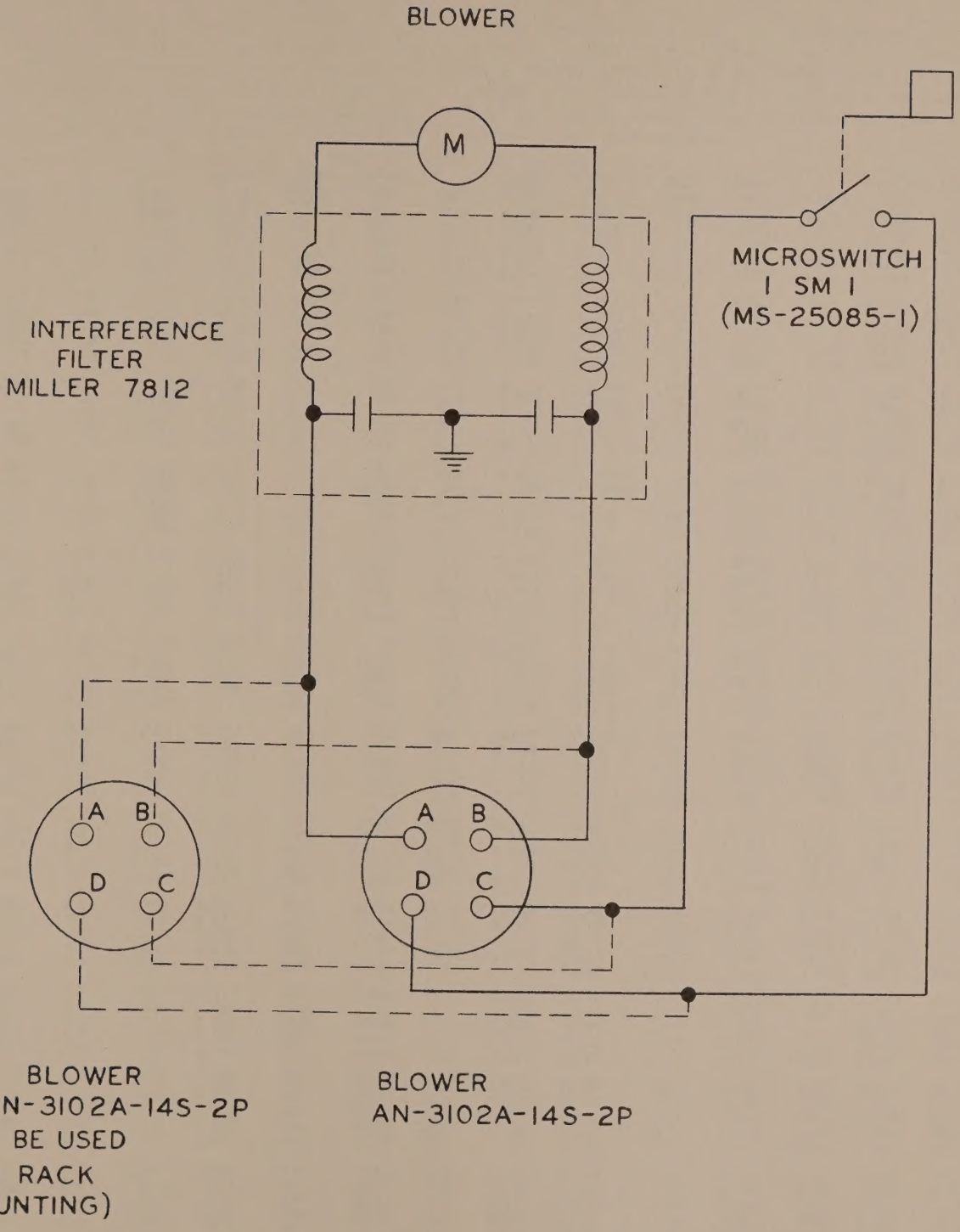
MODEL WE 2
WEATHERPROOF ENCLOSURE

| Component Designation | Description | Mfr.* | Mfr. Part No. |
|---|---|---|---|
| 1 | Case | SA | WE2-MC-5710 |

*See "MANUFACTURERS' CODE LETTERS"




Drawing No. 1. Cabling Diagram.




Drawing No. 2. Schematic Diagram of the Model RFH 1 Oscillator Unit Housing.

# CONVERSION OF VOLTAGE AND POWER RATIOS TO DECIBELS

The basic chart below indicates the number of decibels (db) corresponding to the listed ratios of voltage or power over the range of −20 to +20 db. For voltage or power ratios greater than those included in the chart, the ratio can be broken down into a product of two numbers, the value in db for each found separately, and the two results added. Example: To convert a power ratio of 2,000:1 to db, express 2,000 as $2 \times 10^3$; the number of db corresponding to a power ratio of 2 is very nearly 3, and the number of db for a power ratio of $10^3$ is 30. Therefore, the power ratio of 2,000:1 is approximately 30 db + 3 db = 33 db. In the lower right-hand corner of the chart db values for voltage and power ratios of integral powers of 10 are given.

| Voltage Ratio | Power Ratio | −db+ | Voltage Ratio | Power Ratio | Voltage Ratio | Power Ratio | −db+ | Voltage Ratio | Power Ratio | Voltage Ratio | Power Ratio | −db+ | Voltage Ratio | Power Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.000** | **1.000** | **0** | **1.000** | **1.000** | **.447** | **.200** | **7.0** | **2.239** | **5.012** | **.200** | **.0398** | **14.0** | **5.012** | **25.12** |
| .989 | .977 | .1 | 1.012 | 1.023 | .442 | .195 | 7.1 | 2.265 | 5.129 | .197 | .0389 | 14.1 | 5.070 | 25.70 |
| .977 | .955 | .2 | 1.023 | 1.047 | .437 | .191 | 7.2 | 2.291 | 5.248 | .195 | .0380 | 14.2 | 5.129 | 26.30 |
| .966 | .933 | .3 | 1.035 | 1.072 | .432 | .186 | 7.3 | 2.317 | 5.370 | .193 | .0372 | 14.3 | 5.188 | 26.92 |
| .955 | .912 | .4 | 1.047 | 1.096 | .427 | .182 | 7.4 | 2.344 | 5.495 | .191 | .0363 | 14.4 | 5.248 | 27.54 |
| .944 | .891 | .5 | 1.059 | 1.122 | .422 | .178 | 7.5 | 2.371 | 5.623 | .188 | .0355 | 14.5 | 5.309 | 28.18 |
| .933 | .871 | .6 | 1.072 | 1.148 | .417 | .174 | 7.6 | 2.399 | 5.754 | .186 | .0347 | 14.6 | 5.370 | 28.84 |
| .923 | .851 | .7 | 1.084 | 1.175 | .412 | .170 | 7.7 | 2.427 | 5.888 | .184 | .0339 | 14.7 | 5.433 | 29.51 |
| .912 | .832 | .8 | 1.096 | 1.202 | .407 | .166 | 7.8 | 2.455 | 6.026 | .182 | .0331 | 14.8 | 5.495 | 30.20 |
| .902 | .813 | .9 | 1.109 | 1.230 | .403 | .162 | 7.9 | 2.483 | 6.166 | .180 | .0324 | 14.9 | 5.559 | 30.90 |
| **.891** | **.794** | **1.0** | **1.122** | **1.259** | **.398** | **.159** | **8.0** | **2.512** | **6.310** | **.178** | **.0316** | **15.0** | **5.623** | **31.62** |
| .881 | .776 | 1.1 | 1.135 | 1.288 | .394 | .155 | 8.1 | 2.541 | 6.457 | .176 | .0309 | 15.1 | 5.689 | 32.36 |
| .871 | .759 | 1.2 | 1.148 | 1.318 | .389 | .151 | 8.2 | 2.570 | 6.607 | .174 | .0302 | 15.2 | 5.754 | 33.11 |
| .861 | .741 | 1.3 | 1.161 | 1.349 | .385 | .148 | 8.3 | 2.600 | 6.761 | .172 | .0295 | 15.3 | 5.821 | 33.88 |
| .851 | .724 | 1.4 | 1.175 | 1.380 | .380 | .145 | 8.4 | 2.630 | 6.918 | .170 | .0288 | 15.4 | 5.888 | 34.67 |
| .841 | .708 | 1.5 | 1.189 | 1.413 | .376 | .141 | 8.5 | 2.661 | 7.079 | .168 | .0282 | 15.5 | 5.957 | 35.48 |
| .832 | .692 | 1.6 | 1.202 | 1.445 | .372 | .138 | 8.6 | 2.692 | 7.244 | .166 | .0275 | 15.6 | 6.026 | 36.31 |
| .822 | .676 | 1.7 | 1.216 | 1.479 | .367 | .135 | 8.7 | 2.723 | 7.413 | .164 | .0269 | 15.7 | 6.095 | 37.15 |
| .813 | .661 | 1.8 | 1.230 | 1.514 | .363 | .132 | 8.8 | 2.754 | 7.586 | .162 | .0263 | 15.8 | 6.166 | 38.02 |
| .804 | .646 | 1.9 | 1.245 | 1.549 | .359 | .129 | 8.9 | 2.786 | 7.762 | .160 | .0257 | 15.9 | 6.237 | 38.90 |
| **.794** | **.631** | **2.0** | **1.259** | **1.585** | **.355** | **.126** | **9.0** | **2.818** | **7.943** | **.159** | **.0251** | **16.0** | **6.310** | **39.81** |
| .785 | .617 | 2.1 | 1.274 | 1.622 | .351 | .123 | 9.1 | 2.851 | 8.128 | .157 | .0246 | 16.1 | 6.383 | 40.74 |
| .776 | .603 | 2.2 | 1.288 | 1.660 | .347 | .120 | 9.2 | 2.884 | 8.318 | .155 | .0240 | 16.2 | 6.457 | 41.69 |
| .767 | .589 | 2.3 | 1.303 | 1.698 | .343 | .118 | 9.3 | 2.917 | 8.511 | .153 | .0234 | 16.3 | 6.531 | 42.66 |
| .759 | .575 | 2.4 | 1.318 | 1.738 | .339 | .115 | 9.4 | 2.951 | 8.710 | .151 | .0229 | 16.4 | 6.607 | 43.65 |
| .750 | .562 | 2.5 | 1.334 | 1.778 | .335 | .112 | 9.5 | 2.985 | 8.913 | .150 | .0224 | 16.5 | 6.683 | 44.67 |
| .741 | .550 | 2.6 | 1.349 | 1.820 | .331 | .110 | 9.6 | 3.020 | 9.120 | .148 | .0219 | 16.6 | 6.761 | 45.71 |
| .733 | .537 | 2.7 | 1.365 | 1.862 | .327 | .107 | 9.7 | 3.055 | 9.333 | .146 | .0214 | 16.7 | 6.839 | 46.77 |
| .724 | .525 | 2.8 | 1.380 | 1.905 | .324 | .105 | 9.8 | 3.090 | 9.550 | .145 | .0209 | 16.8 | 6.918 | 47.86 |
| .716 | .513 | 2.9 | 1.396 | 1.950 | .320 | .102 | 9.9 | 3.126 | 9.772 | .143 | .0204 | 16.9 | 6.998 | 48.98 |
| **.708** | **.501** | **3.0** | **1.413** | **1.995** | **.316** | **.100** | **10.0** | **3.162** | **10.000** | **.141** | **.0200** | **17.0** | **7.079** | **50.12** |
| .700 | .490 | 3.1 | 1.429 | 2.042 | .313 | .0977 | 10.1 | 3.199 | 10.23 | .140 | .0195 | 17.1 | 7.161 | 51.29 |
| .692 | .479 | 3.2 | 1.445 | 2.089 | .309 | .0955 | 10.2 | 3.236 | 10.47 | .138 | .0191 | 17.2 | 7.244 | 52.48 |
| .684 | .468 | 3.3 | 1.462 | 2.138 | .306 | .0933 | 10.3 | 3.273 | 10.72 | .137 | .0186 | 17.3 | 7.328 | 53.70 |
| .676 | .457 | 3.4 | 1.479 | 2.188 | .302 | .0912 | 10.4 | 3.311 | 10.96 | .135 | .0182 | 17.4 | 7.413 | 54.95 |
| .668 | .447 | 3.5 | 1.496 | 2.239 | .299 | .0891 | 10.5 | 3.350 | 11.22 | .133 | .0178 | 17.5 | 7.499 | 56.23 |
| .661 | .437 | 3.6 | 1.514 | 2.291 | .295 | .0871 | 10.6 | 3.388 | 11.48 | .132 | .0174 | 17.6 | 7.586 | 57.54 |
| .653 | .427 | 3.7 | 1.531 | 2.344 | .292 | .0851 | 10.7 | 3.428 | 11.75 | .130 | .0170 | 17.7 | 7.674 | 58.88 |
| .646 | .417 | 3.8 | 1.549 | 2.399 | .288 | .0832 | 10.8 | 3.467 | 12.02 | .129 | .0166 | 17.8 | 7.762 | 60.26 |
| .638 | .407 | 3.9 | 1.567 | 2.455 | .285 | .0813 | 10.9 | 3.508 | 12.30 | .127 | .0162 | 17.9 | 7.852 | 61.66 |
| **.631** | **.398** | **4.0** | **1.585** | **2.512** | **.282** | **.0794** | **11.0** | **3.548** | **12.59** | **.126** | **.0159** | **18.0** | **7.943** | **63.10** |
| .624 | .389 | 4.1 | 1.603 | 2.570 | .279 | .0776 | 11.1 | 3.589 | 12.88 | .125 | .0155 | 18.1 | 8.035 | 64.57 |
| .617 | .380 | 4.2 | 1.622 | 2.630 | .275 | .0759 | 11.2 | 3.631 | 13.18 | .123 | .0151 | 18.2 | 8.128 | 66.07 |
| .610 | .372 | 4.3 | 1.641 | 2.692 | .272 | .0741 | 11.3 | 3.673 | 13.49 | .122 | .0148 | 18.3 | 8.222 | 67.61 |
| .603 | .363 | 4.4 | 1.660 | 2.754 | .269 | .0724 | 11.4 | 3.715 | 13.80 | .120 | .0145 | 18.4 | 8.318 | 69.18 |
| .596 | .355 | 4.5 | 1.679 | 2.818 | .266 | .0708 | 11.5 | 3.758 | 14.13 | .119 | .0141 | 18.5 | 8.414 | 70.79 |
| .589 | .347 | 4.6 | 1.698 | 2.884 | .263 | .0692 | 11.6 | 3.802 | 14.45 | .118 | .0138 | 18.6 | 8.511 | 72.44 |
| .582 | .339 | 4.7 | 1.718 | 2.951 | .260 | .0676 | 11.7 | 3.846 | 14.79 | .116 | .0135 | 18.7 | 8.610 | 74.13 |
| .575 | .331 | 4.8 | 1.738 | 3.020 | .257 | .0661 | 11.8 | 3.890 | 15.14 | .115 | .0132 | 18.8 | 8.710 | 75.86 |
| .569 | .324 | 4.9 | 1.758 | 3.090 | .254 | .0646 | 11.9 | 3.936 | 15.49 | .114 | .0129 | 18.9 | 8.811 | 77.62 |
| **.562** | **.316** | **5.0** | **1.778** | **3.162** | **.251** | **.0631** | **12.0** | **3.981** | **15.85** | **.112** | **.0126** | **19.0** | **8.913** | **79.43** |
| .556 | .309 | 5.1 | 1.799 | 3.236 | .248 | .0617 | 12.1 | 4.027 | 16.22 | .111 | .0123 | 19.1 | 9.016 | 81.28 |
| .550 | .302 | 5.2 | 1.820 | 3.311 | .246 | .0603 | 12.2 | 4.074 | 16.60 | .110 | .0120 | 19.2 | 9.120 | 83.18 |
| .543 | .295 | 5.3 | 1.841 | 3.388 | .243 | .0589 | 12.3 | 4.121 | 16.98 | .108 | .0118 | 19.3 | 9.226 | 85.11 |
| .537 | .288 | 5.4 | 1.862 | 3.467 | .240 | .0575 | 12.4 | 4.169 | 17.38 | .107 | .0115 | 19.4 | 9.333 | 87.10 |
| .531 | .282 | 5.5 | 1.884 | 3.548 | .237 | .0562 | 12.5 | 4.217 | 17.78 | .106 | .0112 | 19.5 | 9.441 | 89.13 |
| .525 | .275 | 5.6 | 1.905 | 3.631 | .234 | .0550 | 12.6 | 4.266 | 18.20 | .105 | .0110 | 19.6 | 9.550 | 91.20 |
| .519 | .269 | 5.7 | 1.928 | 3.715 | .232 | .0537 | 12.7 | 4.315 | 18.62 | .104 | .0107 | 19.7 | 9.661 | 93.33 |
| .513 | .263 | 5.8 | 1.950 | 3.802 | .229 | .0525 | 12.8 | 4.365 | 19.05 | .102 | .0105 | 19.8 | 9.772 | 95.50 |
| .507 | .257 | 5.9 | 1.972 | 3.890 | .227 | .0513 | 12.9 | 4.416 | 19.50 | .101 | .0102 | 19.9 | 9.886 | 97.72 |
| **.501** | **.251** | **6.0** | **1.995** | **3.981** | **.224** | **.0501** | **13.0** | **4.467** | **19.95** | **.100** | **.0100** | **20.0** | **10.000** | **100.00** |
| .496 | .246 | 6.1 | 2.018 | 4.074 | .221 | .0490 | 13.1 | 4.519 | 20.42 | | | | | |
| .490 | .240 | 6.2 | 2.042 | 4.169 | .219 | .0479 | 13.2 | 4.571 | 20.89 | | $10^{-3}$ | 30 | | $10^3$ |
| .484 | .234 | 6.3 | 2.065 | 4.266 | .216 | .0468 | 13.3 | 4.624 | 21.38 | $10^{-2}$ | $10^{-4}$ | 40 | $10^2$ | $10^4$ |
| .479 | .229 | 6.4 | 2.089 | 4.365 | .214 | .0457 | 13.4 | 4.677 | 21.88 | | | | | |
| | | | | | | | | | | | $10^{-5}$ | 50 | | $10^5$ |
| .473 | .224 | 6.5 | 2.113 | 4.467 | .211 | .0447 | 13.5 | 4.732 | 22.39 | $10^{-3}$ | $10^{-6}$ | 60 | $10^3$ | $10^6$ |
| .468 | .219 | 6.6 | 2.138 | 4.571 | .209 | .0437 | 13.6 | 4.786 | 22.91 | | $10^{-7}$ | 70 | | $10^7$ |
| .462 | .214 | 6.7 | 2.163 | 4.677 | .207 | .0427 | 13.7 | 4.842 | 23.44 | $10^{-4}$ | $10^{-8}$ | 80 | $10^4$ | $10^8$ |
| .457 | .209 | 6.8 | 2.188 | 4.786 | .204 | .0417 | 13.8 | 4.898 | 23.99 | | $10^{-9}$ | 90 | | $10^9$ |
| .452 | .204 | 6.9 | 2.213 | 4.898 | .202 | .0407 | 13.9 | 4.955 | 24.55 | | | | | |
| | | | | | | | | | | $10^{-5}$ | $10^{-10}$ | 100 | $10^5$ | $10^{10}$ |
| | | | | | | | | | | | $10^{-11}$ | 110 | | $10^{11}$ |
| | | | | | | | | | | $10^{-6}$ | $10^{-12}$ | 120 | $10^6$ | $10^{12}$ |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